

# CALIFORNIA STATE DEPARTMENT OF PUBLIC HEALTH

J. D. DUNSHEE, M.D., Director

## Weekly Bulletin



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GUY P. JONES  
EDITOR

## Public Health

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Everything dealing with the adjusting abilities of the body to the demands of its surroundings is classed under Hygiene; everything dealing with the demands themselves, under Sanitation. Thus, under Hygiene would fall the number, character, nature, range, and mechanism of the various adjusting abilities; their origin, the ways in which they are elicited or enhanced in range; their variations and breakdowns, and all other such knowledge. Under Sanitation, equivalent items concerning the possible demands of surroundings, the ways in which dangerous demands may be escaped, or controlled or even excluded from the surroundings.

General Hygiene and General Sanitation deal with the problems arising from ever-present demands—those demands to which all living things are necessarily always more or less well adjusted.

Specific Hygiene and Specific Sanitation deal with the problems arising from rarer demands—those for which adjustments are not continuously necessary, and often, for lack of the demand, may not be present at all.

To ever-present demands, the corresponding adjustments must of course also be ever present. Their variations in range, not their mere existence, are the important matters. Ever-present demands become dangerous therefore only when they are quantitatively discrepant from the corresponding adjusting abilities.

Such quantitative discrepancies, when they exist, are quantitative maladjustments and causes of damage and death. But they are not the great causes of damage and death in the human race.

These great causes are qualitative changes in the surroundings—the appearance of relatively rare or unusual kinds of demand—especially if that appearance be the first in the experience of the particular living thing exposed to it.

The mere fact that a given living thing is living conclusively proves its possession of a repertoire of adjusting mechanisms adequate both in kind and in range to all the demands it has so far met. But a new kind of demand may appear and to this it may easily have no adjusting mechanism at all. At once the living thing is confronted with the need of preparing a new adjusting mechanism, not merely of using or even extending the range of an old one.

The particular living thing so confronted may have no power at all to achieve the adjustment required, and therefore will suffer or perish.

But most living things, if the new demand is not too great, in degree, find in their internal composite latent potentialities for adjustment, which, given time, may develop into adequate functioning.

Thus the new-born rabbit can never meet a demand requiring wing-flight. It does not possess and never can develop the needed wings. But although a



demand that it run from a wolf will, at the moment of birth, equally overwhelm it, yet, given time, it may develop its latent potentiality for running to a fully wolf-proof degree.

No better example of the whole subject of internal adjustments to unusual external forces can be given than the reactions of the living human to poisons, whether inorganic or organic—the latter being usually products of bacteria, animals or plants.

To a few such poisons no internal adjustments are possible—the minutest quantities are invariably fatal. To all, in overwhelming amounts, adjustment is impossible also. But to most poisons, some adjustment can be made, if only the dose be at first small enough; and to very many, these adjustments, given time can be developed to quite astonishing ranges.

Internal adjustments to the ever-present demands of all surroundings have no particular name as a group; they are usually treated of under the term physiology; but internal adjustments to unusual demands may be broadly classed under immunity notwithstanding that immunologists give to immunity and cognate terms special technical meanings.

#### AMERICAN PUBLIC HEALTH ASSOCIATION

The attention of all public health workers is called to the sixth annual meeting of the Western Branch of the American Public Health Association, to be held in Helena, Montana, on July 1, 2 and 3, 1935. Dr. W. F. Cogswell, State Health Officer of Montana, president-elect of the Western Branch, and chairman of the Committee on Meetings and Publications, has arranged a program of unusual value.

Public health problems among Western Indians; peculiarities of Western water and sewage disposal systems; new plans for public health developments by the federal government; latest advances in the control of Rocky Mountain spotted fever, undulant fever, tularemia, silicosis, psittacosis; home nursing of communicable diseases; various aspects of tuberculosis; and modern advances in health education are among the subjects to be discussed. Among the distinguished guests expected are Miss Katherine Lenroot, U. S. Children's Bureau; Miss Josephine Roche, Third Assistant Secretary of the Treasury; Dr. Thomas R. Crowder, Chief Surgeon of the Pullman Company; Dr. A. J. Chesley, State Health Officer of Minnesota; Dr. Thomas A. Parran, Health Commissioner of New York; Dr. E. L. Bishop, Medical Director of the Tennessee Valley Authority; Mrs. Helen LaMalle, Superintendent of Nursing, Metropolitan Life Insurance Company, New York City, and others.

#### A "NO-GOOD" FISH

Many out-of-door pools and aquariums are stocked with a small fish which is of no great beauty but which, nevertheless, makes an attractive display in a large number. It is commonly known in the Southern States as the "no-good" fish. This unfortunate cognomen, through its generic name *gambusia affinis* which is derived from "gambusiana," a word which is commonly used in Cuba and which means "small" or "of no importance," does not indicate its true value. Since this fish is worth millions of dollars to the Southern States alone, because of its activities in the destruction of mosquito larvae, it is apparent that its name is most unfitting.

This small, surface-feeding top minnow is native in the southeastern part of the United States, ranging from New Jersey southward along the Atlantic seaboard and westward along the entire Gulf coast as far as western Texas along the Mexican border. It is also found as far north as Tennessee and Missouri. It feeds lightly upon insects and wherever it inhabits water in which mosquitoes breed its principal food consists of mosquito larvae. It has been found superior to any other species in the destruction of such larvae. Because of its small size, it is able to penetrate to very shallow depths where it is free from the attacks of predacious fish. Large numbers are often found in water which is less than an inch in depth. In fact, those conditions which are ideal for mosquito propagation are best suited to the *gambusia affinis*. It seeks its food at the surface along the edges of ponds, in marsh grass and swamps, where it is also protected from large fish. It is seldom found in open waters where game fish are present.

In April of 1922, the California State Board of Health received a consignment of 590 of these top minnows from Texas, followed by a shipment of 500 one month later. These shipments were planted in the Fort Sutter lily pond in Sacramento and were allowed to propagate unmolested until July, when 600 were removed for the establishment of hatcheries in two localities in the Sacramento Valley. In the following year, more than 25 hatcheries were established from Redding to the north as far as Santa Ana in the south. The enormous propagation of this important factor in mosquito control can scarcely be estimated. Many millions of them are now scattered throughout the state. Most out-of-door pools in both public and private places are stocked with *gambusia affinis*. The results that have been accomplished in mosquito control through this single agency are most outstanding.

This fish is viviparous and very hardy. It is most vigorous and active in its movements. It is very



prolific, producing as many as six to eight broods in a season averaging 40 young to a single brood. Three generations may be represented in a single season. It requires no special environment for spawning, since the young are in an advanced state of development at birth and not subject to the same dangers which beset the young of oviparous fish. At birth these minnows are approximately one-half inch in total length and they have been observed to start their activities in larvae destruction when not more than one day old. The female attains an average size of two inches when matured, exceptionally large ones reaching possibly  $2\frac{1}{2}$  inches in total length. The male rarely attains a length of more than  $1\frac{1}{4}$  inches and many of them are not more than  $\frac{3}{4}$  of an inch in length. Because of its extreme proliferation, easy propagation, ability to adapt itself to different conditions and to reach areas not penetrated by other species, its exceptional devouring capacity, general habits and because it lives in identical areas with mosquito larvae, the *gambusia affinis* is the most valuable natural agent known in the abatement of mosquito breeding. Regardless of its small size, each fish is able to consume more than 100 mosquito larvae every day.

Following the introduction into California of *gambusia affinis* a supply of these useful members of the finny tribe was sent to the Steinhart Aquarium in Golden Gate Park, San Francisco. They have multiplied prodigiously under aquarium conditions, as they do in their native pools. The California Academy of Sciences, which controls the Steinhart Aquarium, has sent colonies of these top minnows to many distant parts of the world. One colony was sent to Father Rogier at Papeete, Tahiti. They arrived safely in spite of the long journey and were used in stocking ponds in Papeete. Another colony was sent to Father Rogier later for stocking ponds on Christmas Island. The academy has also sent supplies of these fish to India, Phillipine Islands, Panama, Hawaii, China, Japan and Siam. None can state, even approximately, how many of these top minnows are now in California waters. To even guess at the number of millions would be unsafe.

While it is true that these finny friends can only be counted on for perfect results in mosquito control when proper conditions are found, they constitute a most valuable ally in the control of these insects, as well as in the control of malaria. They can not accomplish miracles but they can help greatly in the elimination of the insect pest. Owners of outdoor pools and aquariums can easily obtain supplies of *gambusia affinis* and may derive considerable enjoyment through watching them in their development. They will gen-

erally thrive with goldfish and their neutral color provides contrast to the brilliant colors of other aquarium fish. There is some danger that large fish will destroy them. They are particularly endangered by larger fish of the carp family.

Considerable respect is due to these tiny friends, for through their activities they have added greatly to the comfort of man. They do not possess the beauty that belongs to most aquarium fish, but their interesting natural history and their great activity make them objects of admiration to all owners of pools and aquariums.

## CALIFORNIA STATE DEPARTMENT OF PUBLIC HEALTH

### DISEASES REPORTABLE IN CALIFORNIA REPORTABLE ONLY

ANTHRAX	MALARIA*
BERIBERI	PELLAGRA
BOTULISM	PNEUMONIA (Lobar)
COCCIDIOIDAL GRANU- LOMA	RELAPSING FEVER
DENGUE*	ROCKY MOUNTAIN SPOTTED FEVER
FLUKE INFECTION	SEPTIC SORE THROAT
FOOD POISONING	TETANUS
GLANDERS***	TRICHINOSIS
HOOKEWORM	TULAREMIA
JAUNDICE (Infectious)	UNDULANT FEVER

### ISOLATION OF PATIENT

CHICKENPOX**	OPHTHALMIA NEONA- TORUM
DYSENTERY (Amoebic)	PSITTACOSIS
DYSENTERY (Bacillary)	RABIES (Animal)**
ERYSIPELAS	RABIES (Human)
GERMAN MEASLES**	SYPHILIS
GONOCOCCUS INFECTION	TRACHOMA
INFLUENZA	TUBERCULOSIS
MEASLES**	WHOOPING COUGH**
MUMPS**	

### QUARANTINABLE

CHOLERA***	SCARLET FEVER
DIPHTHERIA	SMALLPOX
ENCEPHALITIS (Epidemic)	TYPHOID AND PARA- TYPHOID FEVER
LEPROSY	TYPHUS FEVER
MENINGITIS (Epidemic)	YELLOW FEVER***
PLAGUE***	
ACUTE ANTERIOR POLIOMYELITIS	

\* Patient should be kept in mosquito-free room.

\*\* Nonimmune contacts isolated also.

\*\*\* Cases to be reported to State Department of Public Health by telephone or telegraph and special instructions will be issued.

### MORBIDITY

Complete Reports for Following Diseases for Week Ending  
April 27th, 1935

#### Chickenpox

1079 cases: Alameda County 3, Alameda 21, Albany 8, Berkeley 52, Oakland 97, Piedmont 8, San Leandro 1, Gridley 1, Contra Costa County 1, Pittsburg 1, Fresno County 15, Fresno 8, Sanger 15, Humboldt County 1, Eureka 1, Imperial County 4, Kern County 10, Bakersfield 1, Taft 1, Hanford 17, Lemoore 2, Lake County 1, Lakeport 2, Los Angeles County 46, Beverly Hills 32, Burbank 2, Claremont 5, Compton 10, Culver City 2, El Monte 1, Glendale 4, Huntington Park 1, Inglewood 1, La Verne 1, Long Beach 16, Los Angeles 186, Manhattan 1, Pasadena 21, Pomona 7, San Fernando 2, San Gabriel 1, Santa Monica 2, Whittier 11, Torrance 1, Lynwood 4, South Gate 6,



Monterey Park 4, Gardena 1, Madera County 2, Madera 5, San Rafael 3, Merced County 1, Gustine 1, Monterey County 2, Salinas 2, Orange County 5, Anaheim 2, Fullerton 1, Huntington Beach 7, Santa Ana 12, La Habra 1, Laguna Beach 1, Riverside County 14, Riverside 4, Sacramento 28, San Juan Bautista 1, San Bernardino County 1, Colton 3, Redlands 1, San Diego County 6, Coronado 1, National City 5, San Diego 100, San Francisco 70, San Joaquin County 10, Lodi 1, Stockton 9, San Luis Obispo County 6, San Mateo County 21, Burlingame 5, Daly City 35, San Mateo 3, Santa Barbara County 1, Lompoc 1, Santa Barbara 6, Santa Maria 3, Santa Clara County 9, Palo Alto 12, San Jose 8, Sunnyvale 3, Santa Cruz County 1, Watsonville 1, Vallejo 1, Stanislaus County 1, Ceres 3, Newman 4, Yuba City 1, Tulare County 2, Visalia 1, Ventura County 4, Fillmore 2, Ventura 1, Yolo County 2, Woodland 3, California 1.\*

#### Diphtheria

31 cases: Oakland 2, Kern County 1, Los Angeles County 1, Glendale 2, Los Angeles 14, St. Helena 1, Orange County 2, Santa Ana 1, Corona 1, Riverside 1, Sacramento 1, San Mateo 1, Modesto 1, Tulare County 1, Ventura 1.

#### German Measles

826 cases: Berkeley 4, Oakland 61, Piedmont 1, Colusa County 1, Colusa 2, Fresno County 65, Fresno 6, Kern County 1, Bakersfield 1, Los Angeles County 50, Alhambra 5, Burbank 3, Compton 2, Glendale 2, Huntington Park 6, Inglewood 2, Long Beach 10, Los Angeles 83, Monrovia 3, Pasadena 5, Pomona 2, Redondo 2, San Gabriel 1, Whittier 9, Lynwood 1, South Gate 4, Maywood 1, Gardena 1, Madera 1, San Rafael 10, Monterey County 1, Salinas 4, Orange County 4, Anaheim 1, Fullerton 1, Newport Beach 1, Orange 4, Santa Ana 6, La Habra 2, Laguna Beach 3, Riverside County 3, Beaumont 2, Riverside 1, Sacramento 8, Colton 4, Ontario 2, San Diego County 21, La Mesa 6, National City 1, San Diego 20, San Francisco 88, San Joaquin County 13, Stockton 5, San Luis Obispo County 1, Paso Robles 2, Burlingame 1, Daly City 2, San Mateo 2, Santa Barbara County 9, Lompoc 2, Santa Barbara 1, Santa Clara County 21, Los Gatos 6, Mountain View 9, Palo Alto 2, San Jose 164, Sunnyvale 1, Newman 6, Oakdale 1, Tehama County 2, Trinity County 3, Tulare County 3, Lindsay 1, Ventura County 41.

#### Influenza

42 cases: Fresno County 1, Lake County 1, Los Angeles County 1, Glendale 2, Los Angeles 26, Montebello 2, Whittier 2, Maywood 1, San Juan Bautista 1, Ontario 1, San Diego 1, San Francisco 2, Stanislaus County 1, Yolo County 1.

#### Malaria

2 cases: Los Angeles County 1, San Joaquin County 1.

#### Measles

2030 cases: Alameda County 26, Alameda 7, Albany 1, Berkeley 64, Emeryville 3, Hayward 1, Oakland 23, Piedmont 2, Pleasanton 1, Calaveras County 3, Angels Camp 2, Colusa County 1, Colusa 3, Contra Costa County 16, Pittsburg 1, Fresno County 26, Fresno 76, Selma 2, Humboldt County 4, Eureka 4, Kern County 86, Bakersfield 12, Kings County 3, Hanford 9, Lemoore 19, Los Angeles County 26, Alhambra 1, Beverly Hills 5, Burbank 10, Compton 1, Glendale 5, Long Beach 101, Los Angeles 71, Monrovia 1, Montebello 6, Pasadena 4, Pomona 1, Redondo 1, Santa Monica 1, Whittier 1, Torrance 1, Lynwood 1, Signal Hill 1, Madera County 3, Chowchilla 2, Mariposa County 4, Merced County 42, Gustine 1, Los Banos 8, Salinas 1, Nevada County 1, Nevada City 3, Orange County 58, Anaheim 30, Brea 7, Fullerton 47, Orange 24, Santa Ana 83, La Habra 3, Placentia 4, Tustin 2, San Clemente 1, Riverside County 4, Riverside 5, Sacramento 252, San Benito County 19, San Juan Bautista 2, San Bernardino County 8, Chino 1, Colton 1, Ontario 1, San Diego County 4, San Diego 6, San Francisco 56, San Joaquin County 219, Lodi 15, Manteca 32, Stockton 102, Tracy 2, San Luis Obispo County 15, Arroyo Grande 9, Paso Robles 4, San Luis Obispo 3, San Mateo County 1, Burlingame 11, Redwood City 2, San Bruno 1, Menlo Park 1, Belmont 1, Santa Barbara County 5, Lompoc 3, Santa Barbara 2, Santa Maria 4, Santa Clara County 3, Los Gatos 9, Mountain View 1, San Jose 59, Sunnyvale 1, Santa Cruz County 7, Watsonville 32, Siskiyou County 25, Stanislaus County 22, Ceres 7, Modesto 4, Newman 33, Oakdale 21, Tehama County 2, Reb Bluff 1, Trinity County 1, Tulare County 7, Lindsay 2, Porterville 2, Visalia 8, Ventura County 1, Ventura 7, Yolo County 22, Woodland 1, California 2.\*

#### Mumps

362 cases: Alameda County 2, Alameda 13, Berkeley 6, Hayward 1, Oakland 62, Amador County 3, Gridley 3, Contra Costa County 1, Placerville 1, Fresno County 5, Fresno 1, Kern County 3, Los Angeles County 6, Burbank 3, Culver City 2, Glendale 1, Los Angeles 10, Monrovia 1, San Fernando 1, Ross 1, San Rafael 3, Merced County 15, Orange County 6, Santa Ana 1, Riverside County 1, Sacramento 23, San Bernardino County 1, National City 1, San Diego 1, San Francisco 8, San Joaquin County 30, Lodi 18, Stockton 14, Tracy 4, San Luis Obispo County 11, Arroyo Grande 6, San Mateo 1, Santa Barbara County 9, Santa Barbara 3, Santa Maria 14, Santa Clara County 1, San Jose 2, Willow Glen 1, Santa Cruz County 2, Watsonville 1, Solano County 1, Fairfield 2, Tulare County 2, Lindsay 16, Visalia 5, Ventura County 2, Fillmore 1, Ventura 1, Yolo County 26, Woodland 3.

\* Cases charged to "California" represent patients ill before entering the State or those who contracted their illness traveling about the State throughout the incubation period of the disease. These cases are not chargeable to any one locality.

#### Pneumonia (Lobar)

49 cases: Oakland 1, Fresno 1, Eureka 1, Imperial County 1, Kern County 1, Bakersfield 1, Los Angeles County 7, Inglewood 1, Los Angeles 16, Montebello 1, Pasadena 1, Whittier 1, Orange County 1, Riverside County 2, Corona 2, Sacramento County 1, Colton 1, San Diego County 1, National City 3, San Francisco 5.

#### Scarlet Fever

177 cases: Alameda County 3, Alameda 7, Oakland 3, Piedmont 1, Amador County 1, Contra Costa County 1, El Dorado County 2, Placerville 1, Fresno County 2, Fresno 1, Humboldt County 4, Imperial County 2, Los Angeles County 12, Alhambra 1, Compton 1, Inglewood 1, Long Beach 4, Los Angeles 42, Pasadena 3, Pomona 3, San Fernando 2, Santa Monica 1, Salinas 1, Anaheim 1, Fullerton 1, Santa Ana 2, Placer County 1, Auburn 1, Riverside County 1, Riverside 2, Sacramento 5, Isleton 2, Colton 2, Redlands 1, San Diego County 6, San Diego 11, San Francisco 11, San Joaquin County 2, Lodi 1, Stockton 1, San Luis Obispo County 1, Daly City 2, Redwood City 1, San Mateo 1, Santa Barbara 2, Santa Maria 1, Los Gatos 2, Palo Alto 1, San Jose 1, Siskiyou County 1, Solano County 1, Healdsburg 1, Petaluma 1, Sutter County 1, Tulare County 2, Sonora 1, Ventura County 1, Ontario 3, Woodland 2, Yuba County 1.

#### Smallpox

4 cases: Los Angeles 2, Riverside County 1, Colton 1.

#### Typhoid Fever

5 cases: Alameda 1, Fresno County 1, Los Angeles County 1, San Francisco 1, Stanislaus County 1.

#### Whooping Cough

300 cases: Berkeley 17, Oakland 11, Piedmont 11, Selma 2, Kern County 1, Los Angeles County 16, Alhambra 2, Beverly Hills 4, Burbank 2, Glendale 4, Long Beach 5, Los Angeles 19, Pasadena 3, Redondo 1, San Fernando 1, San Gabriel 1, Monterey Park 2, Maywood 1, San Rafael 5, Napa 4, Orange County 4, Anaheim 1, Huntington Beach 4, Santa Ana 14, Tustin 1, Sacramento 1, San Diego County 18, El Cajon 4, National City 14, San Diego 21, San Francisco 23, San Joaquin County 9, Stockton 6, San Luis Obispo County 1, San Luis Obispo 2, San Mateo 1, Santa Barbara County 5, Santa Barbara 14, Santa Clara County 4, Los Gatos 22, Palo Alto 13, San Jose 2, Ventura County 2, Davis 2.

#### Meningitis (Epidemic)

9 cases: Gridley 1, Lassen County 1, Los Angeles 1, Plumas County 2, Riverside County 2, Redwood City 1, California 1.\*

#### Dysentery (Amoebic)

1 case: Los Angeles.

#### Dysentery (Bacillary)

1 case: Los Angeles.

#### Leprosy

1 case: Los Angeles County.

#### Pellagra

3 cases: Los Angeles County 1, Los Angeles 1, San Francisco 1.

#### Poliomyelitis

4 cases: Los Angeles County 2, San Francisco 1, Ventura 1.

#### Tetanus

2 cases: Fresno County 1, Torrance 1.

#### Encephalitis (Epidemic)

One case: Modesto.

#### Food Poisoning

2 cases: Chowchilla.

#### Undulant Fever

3 cases: Los Angeles County 1, Stockton 1, Stanislaus County 1.

#### Septic Sore Throat (Epidemic)

2 cases: San Francisco 1, Santa Barbara 1.

#### Psittacosis

1 case: Los Angeles County.

#### Rabies (Animal)

28 cases: El Cerrito 2, Brawley 1, Los Angeles County 10, Alhambra 1, Inglewood 2, Los Angeles 5, Santa Monica 2, San Diego 3, Stockton 2.